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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/903,347 | 07/11/2001 | Kevin A. McCullough | P00472-US1 | 8432 |

3017 7590 08/29/2003

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| EXAMINER |
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YOON, TAE H

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| ART UNIT | PAPER NUMBER |
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1714

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/903,347 | MCCULLOUGH ET AL. |
| | Examiner | Art Unit |
| | Tae H Yoon | 1714 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-11 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1.) Certified copies of the priority documents have been received.
 2.) Certified copies of the priority documents have been received in Application No. ____.
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). ____ .
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . 6) Other:

Insertion of continuing data at the beginning of the specification is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recited “-based” in “PITCH-based carbon” and “PAN-based carbon” is indefinite since said “-based carbon” can be any carbon absent further limitation. For example, said “PITCH-based carbon” can be interpreted as carbon derived (derivative) from PITCH being same as “PAN-based carbon” since said “-based carbon” would not require any structural limitation and would permit any chemical modification as long as said derivative is a carbon product having the recited aspect ratio.

The abbreviated “PAN” in claim 1 is indefinite and a full chemical name is needed.

The recited “said second third filler” and “said third filler” in claims 9-11 lack antecedent basis in claim 1.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okamura et al (US 5,373,046).

It is the examiner's position is that said "PITCH-based carbon" can be same as "PAN-based carbon" since said "-based carbon" would not require any structural limitation and would permit any chemical modification as long as said derivative is a carbon product having the recited aspect ratio.

Okamura et al teach a thermally conductive composition comprising a polymer and a mixture of fillers in examples and claim 1. Fillers are carbon black, talc, and at least one of carbon fiber, glass fiber and potassium titanate fiber. Examples (col. 8, lines 20-34) show PAN carbon fiber a large aspect ratios (300). Talc particles, which are thermally conductive, are seen in said col. 8, and said carbon black and talc particle have the aspect ratio of about 1 due to randomness such as spherical or granular. Liquid crystalline polymer is taught in claim 7. An amount of said carbon fiber is up to 150 parts by weight based on 100 parts by weight of a polymer (col. 3, lines 29-41) which encompasses the instant amount. The composition of Okamura et al inherently possesses the instant thermal conductivity and tensile strength and net-shape property.

Thus, the instant invention lacks novelty.

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Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (US 6,303,096) in view of Okamura et al (US 5,373,046).

Yamamoto et al (US 6,303,096) teach that the use of a combination of "PAN-based carbon fiber" and "PITCH-based carbon fiber" in order to obtain a good thermal conductivity and mechanical properties at col. 1, line 62 to col. 2, line 4. Yamamoto et al also teach the use of "PITCH-based carbon" in a thermoset resin at col. 8, lines 16-28.

The instant invention further recites an aspect ratio of at least 10 over Yamamoto et al. However, fibers are generally known to having a large aspect ratio as taught by Okamura et al.

It would have been obvious to one skilled in the art at the time of invention to utilize commercially available carbon fibers having the instant aspect ratio of Okamura et al in Yamamoto et al with a polymer since Yamamoto et al teach a combination of "PAN-based carbon fiber" and "PITCH-based carbon fiber" and its use with a polymer.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Itoh et al (US 2002/0022686 A1) teach a composition comprising a polycarbonate, "PITCH-based carbon fiber", "PAN-based carbon fiber" and PTFE particle or antimony trioxide in tables 2 and 3. Said PTFE particle and antimony trioxide ([0060]-[0061]) meet the instant third filler. Said "PITCH-based carbon fiber" and "PAN-based carbon fiber" ([0065]-[0068] and [0122]-[0125]) meet the instant invention.

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However, Itoh et al have a filing date of June 13, 2001 and thus are not available as a prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H Yoon whose telephone number is (703) 308-2389. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Tae H Yoon
Primary Examiner
Art Unit 1714

THY/August 25, 2003